

evidence offered in support of Dr. Kuntze's views is at present incomplete, and that further researches into the life-history of these plants must be made before these views can be generally accepted.

After an elaborate systematic revision of the genus, Dr. Kuntze goes on to discuss the Sargasso Sea. He draws attention to the wide divergences which exist between the accounts given of it by different travellers. Thus Humboldt and Maury speak of it as a mass of gulf-weed having an area of thousands of square miles, whereas others—Sir Wyville Thomson, for instance—describe it as consisting of small scattered patches. Dr. Kuntze concludes that there is no reason for assigning a definite and constant area to it. It appears that the patches of weed occur more frequently in the region of calms, but at times it is either absent or present only in small quantities even there. A wind blowing for a considerable time in one direction might, under certain circumstances, cause the aggregation of patches into a mass of some extent, such as is to be found, for instance, in the neighbourhood of the Bermudas in spring after the equinoctial gales, but even this would be but small when compared with Humboldt's estimate.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The following gentlemen have been nominated by the Vice-Chancellor as examiners for the Degree of Bachelor of Medicine. In the first examination for M.B.:—S. H. West, M.A., M.B. Christ Church; J. A. Dale, M.A. Balliol; A. G. Vernon Harcourt, M.A. Christ Church. In the second examination for M.B.:—T. K. Chambers, M.D., Christ Church; James Andrews, M.D., Wadham; T. P. Teale, M.A., M.B., Brasenose. In the examination in Preventive Medicine:—W. Ogle, M.D. Corpus; G. W. Child, M.D. Exeter; W. F. Donkin, M.A. Magdalen; Douglas Galton, Capt. R.E., Hon. D.C.L.

A Fellowship will shortly be offered by University College for proficiency in biology. The details are not yet announced.

SCIENTIFIC SERIALS

Annalen der Physik und Chemie, No. 10.—On the influence of curvature of the wall on the constants of capillarity in wetting liquids, by P. Volkmann.—Constructions for anomalous dispersion, by E. Ketteler.—On Newton's dust-rings (continued), by K. Exner.—On calculation of the correction for temperature in calorimetric measurements, by L. Pfundler.—Chemical energy and electromotive force of various galvanic combinations, by J. Thomsen.—On the photo- and thermo-electric properties of fluor spar, by W. Hankel.—On electrical elementary laws, by E. Riecke.—Remarks on some recent electro-capillary experiments, by E. Lippmann.—Experimental researches on weakly magnetic substances (third part), by P. Silow.—Researches on the height of the atmosphere and the constitution of gaseous heavenly bodies (continued), by A. Ritter.—Reply to Herr Herwig "On the Heat-Conductivity of Mercury," by H. F. Weber.—Reply to Herr Winckelmann's remarks in a recent number, by the same.

Archives des Sciences Physiques et Naturelles, October 15.—Contributions to a study of the colouring-matters of plants, by J. B. Schnetzler.—Practical study of marine zoology; the zoological station of Naples, by E. Yung.—Sixty-third session of the Helvetic Society of Natural Sciences, held at Brigue on September 13-15, 1880; Proceedings in the departments of Physics and Chemistry, Geology, Botany, Zoology and Medicine.

SOCIETIES AND ACADEMIES LONDON

Linnean Society, November 4.—Prof. Allman, F.R.S., president, in the chair.—The session opened by Mr. H. C. Sorby showing drawings of some British sea-anemones, with habitat on the upper fronds of long seaweeds in deep water; and he recorded having seen a solitary cream-coloured cetacean on the English coast.—Mr. Arthur Bennett drew attention to a new British Chara (*C. stelligera*), remarkable for the presence of stellate bulbils on the stems.—Mr. E. M. Holmes exhibited two marine algae new to Britain, viz., *Dasya gibbesii*, from Berwick-on-Tweed, and *Ectocarpus terminalis* from Weymouth; and also species of *Callithamnion*, with antheridia and trichophore on the same branchlet.—Prof. T. S. Cobbold exhibited a remarkable trematode from the horse. It was discovered by Dr. Sonsini at

Zagazig during the Egyptian plague, with which outbreak, however, the parasite had no necessary connection. The worm (*Gastrodiscus sonsinonis*) appeared to be an aberrant amphistome furnished with a singular ventral disk, whose concavity was lined with about 200 small suckers having a tessellated aspect. In this respect its nearest approach was a worm infesting a genus of spiny-finned fishes (*Cataphractus*) belonging to the Triglidae. According to Prof. Leuckart's recent anatomical investigation, however, doubts are thrown on its amphistomoid affinities.—Mr. G. F. Angas showed the leaf of *Hermas gigantea*, an umbelliferous plant of the Cape used as tinder by the Hottentots.—Mr. E. A. Webb exhibited a monstrous bramble (*Rubus fruticosus*) with flowers represented by elongated axes covered with minute pubescent bracts and apices fasciated.—A communication by Dr. G. Watt was read, viz., contribution to the flora of North-West India. The geographical features of the district are noted. He divides it into three areas: the first range, Ravee-Basin, with magnificent forests of *Cedrus deodara* on its northern slopes, has on the southerly ones vegetation with an Indian facies, being barely outside the humid influence of the tropical rains of the plains; the second range, comprising Pangri, Lower Lahore, and British Lahore, has a flora altogether changed, dry short summers and snow-clad mountains giving a climate and plant-life of quite a different cast; the third range evinces still further change of flora, this assuming a Thibetan type. Some 300 species of plants are noted, four being new.—A paper on the Papilionidae of South Australia, by J. G. Otto Tepper, was read. The butterflies of this part of Australia are comparatively few in numbers, and sombre colours prevail thus seemingly in harmony with the surroundings of their habitat. The paucity of numbers the author attributes to the dryness of the climate. Notes on the habits accompany the descriptions of the species.—Notes on a collection of flowering plants from Madagascar were read by Mr. J. G. Baker. The flowering plants are less known than the ferns from this interesting island; two new genera are denoted, viz. (1) *Kitchingia*, belonging to the Crassulaceae, a succulent herb with fleshy sessile leaves and large bright red flowers in lax terminal cymes; (2) *Rodocodon*, a liliaceous plant with red flowers and peculiar spurred bracts: it comes between *Muscaria* and *Urginea*. Thirty new species are described.—Messrs. Edw. Brown, H. E. Dresser, and T. F. Pippe were elected Fellows of the Society.

Mathematical Society, November 11.—Mr. C. W. Merrifield, F.R.S., president, in the chair.—The Treasurer's and Secretaries' reports were read and adopted.—After the ballot had been taken, the gentlemen whose names are given on p. 614 of the last volume were declared duly elected as the Council for the present session.—Mr. S. Roberts, F.R.S., the new president, having taken the chair, Mr. Merrifield read his valedictory address, "Considerations respecting the Translation of Series of Observations into Continuous Formulæ."—On the motion of Prof. Cayley, F.R.S., the address was ordered to be printed in the *Proceedings*.—Mr. H. M. Jeffery, F.R.S., then read a paper on bicircular quartics, with a triple and double focus, and three single foci, all of them collinear.—Mr. Tucker (hon. sec.) communicated parts of a paper by the Rev. C. Taylor, further remarks on the geometrical method of reversion.

Geological Society, November 3.—Robert Etheridge, F.R.S., president, in the chair.—Bernard Barham Woodward was elected a Fellow of the Society.—The President announced that the original portrait of Dr. William Smith, painted by M. Fourau in the year 1838, had been presented to the Society by Mr. William Smith of Cheltenham.—The following communications were read:—On the serpentine and associated rocks of Anglesey, with a note on the so-called Serpentine of Porthdinlleyn (Caernarvonshire), by Prof. T. G. Bonney, F.R.S., Sec. G.S. Several patches of serpentine are indicated on the Geological Survey map on the western side of Anglesey, near Tre Valley Station, and a considerable one on Holyhead Island, near Rhoscolyn. These really include three very distinct varieties of rocks: (1) compact green schistose rocks, (2) gabbro, (3) true serpentine. The author described the mode of occurrence of each of these, and their relations, the serpentine being almost certainly intrusive in the schist, and the gabbro in the serpentine. The microscopic structure of the various rocks was described in detail, especially of the last. It presents the usual characteristics, and is an altered olivine rock which has contained bronzite. One or two varieties are rather peculiar; an ophealcite and a compact chloritic schist containing chromite are also noticed.

At Porthdinlleyn there is no serpentine, but a remarkably interesting series of agglomerates and (probably) lava-flows of a basic nature, which may now be denominated diabases.—Note on the occurrence of remains of recent plants in brown iron ore, by J. Arthur Phillips, F.G.S. The fossilising ironstone described by the author occurs at Rio Tinto, in the province of Huelva, Spain, in close proximity to the celebrated copper mines of that name, where it forms a thick horizontal capping of a hill known as the Mésa de los Pinos. In this iron ore Dr. Carruthers has identified the following vegetable remains:—Leaves and acorns of *Quercus ilex*, Linn.; leaves and seed of a two-leaved species of *Pinus*, most probably *Pinus pinea*, Linn.; the cone of *Equisetum arvense*, Linn.; and a small branch of a species of *Erica*. There is also a well-marked leaf of a dicotyledonous plant not yet identified. The plants are evidently all of the same species as are still found growing in Spain. The author attributes this deposit of ironstone to the decomposition, partly by organic agency, of ferruginous salts, derived from the oxidation of iron pyrites, which flowed into a marsh or shallow lagoon. Subsequently to this the valleys of the Rio Agrio and Rio Tinto were eroded, leaving the Mésa de los Pinos with its thick capping of iron ore.—Notes on the locality of some fossils found in the Carboniferous rocks at T'ang Shan, situated, in a north-north-east direction, about 120 miles from Tientsin, in the province of Chih Li, China, by James W. Carrall, F.G.S., with a note by Wm. Carruthers, F.R.S. The author described the locality from which he obtained some plant-remains of apparently Carboniferous age, and stated that mining operations had been carried on by a Chinese company in the district since the year 1878. Several seams of coal occur, varying in thickness from 11 inches to 6 feet. Mr. Carruthers stated in a note that the specimens submitted to him belong to a species of *Annularia*, probably *A. longifolia*, Brough, abundant in the British coal-measures, and found both on the Continent and in North America.

PARIS

Academy of Sciences, November 8.—M. Edm. Becquerel in the chair.—The following papers were read:—On the heat of formation of dimethyl, and on its relation with the methylic and ethylic series, by M. Berthelot.—Researches on the Upper Cretaceous of the northern slope of the Pyrenees, by M. Hébert.—Observations on phylloxera, by M. Henneguy. From over three years' observations he is quite convinced that vines not attacked may be saved, and those which have not suffered too much be restored. Vine growers have three efficacious modes of treatment: sulphocarbonates, sulphide of carbon, and submersion. But the treatment must be repeated each year (at least for a time), and must extend over the whole vineyard. To destroy the winter egg in the bark, decortication and treatment with sulphide of carbons has proved good; also application of flame to the stock with a "pyrophore" (the latter is more effectual than application of boiling water, also easier and more economical). The spontaneous recovery of seemingly dead vines is only temporary; new roots form after abundant rain, and supply sap for fresh shoots. If the insects (which persist) be destroyed before they reach these roots, the vine may quite recover.—Observations on the influence of last season on the development of phylloxera; on insecticides, by M. Boiteau. August and September were so rainy as to be very unfavourable to the insect. Most of the vines that still exist will be saved. Sulphide of carbon is largely used by all kinds of proprietors. Among other directions as to its use, he says, the quantity per square metre should be 15 to 20 gr.—Preparation of a new alimentary substance, *nutricine*, by M. Moride. Raw meat, freed from bones and tendons, is passed into suitable machines with nitrogenised alimentary substances (bread, e.g.), which absorb its water, and form perhaps organic combinations with it. The whole is dried in air or a mild stove, then pulverised and sifted. The powder got is grey or yellowish, and has an agreeable taste. With albumen, fats, or gummed water, solid cakes or cubes may be made of it, to be afterwards divided for soups, sauces, &c. The substance is very nutritive, and keeps indefinitely if not exposed to moisture or too great heat.—The Secretary stated that a great many applications had been made for seeds of the vines of Soudan. M. Lécord has published a brochure on this vine, and is collecting all the seeds he can to send home.—On algebraic equations; examination of the propositions of Abel, by M. West.—Researches on the transformation of oxygen into ozone by the electric effluve in presence of a foreign gas, by MM. Hautefeuille and Chappuis. Even a

very little chlorine hinders the transformation, and when introduced destroys ozone previously formed. Nitrogen occasions a larger transformation than if the oxygen were unmixed, and had the same pressure as in the mixture. The formation of ozone in presence of hydrogen is greater than in that of nitrogen. With fluoride of silicium a large proportion of ozone is formed (the effluve becoming a luminous rain of fire). The authors theorise on these results.—Action of chlorine and hydrochloric acid on chloride of lead, by M. Ditte.—On the combinations of ammonia gas with chloride and iodide of palladium, by M. Isambert. The tensions of dissociation are weaker at the same temperature the greater the heat of combination.—On the formation of chloroform by alcohol and chloride of lime; equation of the reaction and cause of the liberation of oxygen manifested, by M. Béchamp. *En résumé*, the chloroform is produced without liberation of gas; the swelling is due exclusively to the chloroform, which is in a medium the temperature of which is higher than its boiling point, and to the tension of its vapour; the gaseous liberation only commences when it has completely distilled, and the temperature rises so as to reach that which is necessary to make the mixture of chloride of lime and water boil.—On the organisation and the development of the Gordians, by M. Villot.—M. de Treux described a bolide observed at Amiens on November 2, at 4.58 p.m. Its diameter seemed about a sixth of that of the moon. Visible 10 to 15 sec. the bolide was successively blue, yellow, and red; bright sparks being given out at each change of colour.—A geological map of Spain, by M. de Botella, was presented.

VIENNA

Imperial Academy of Sciences, November 4.—On the theory of so-called electric expansion or electrostriction, by L. Boltzmann.—Measurements of co-vibration for the case of strong deadening, by C. Laske.—On cells and intermediate substances, by S. Stricker.—The psychic activity of the coating of the brain, considered from a physiological standpoint, by I. Schneider.—Description and sketch of a steerable balloon, by W. Bosse.—On mesitylendisulpho-acid, by J. Barth and T. Herzig.—On the absorption of solar radiation by the carbonic acid of our atmosphere, by E. Lecher.—On some properties of the capillary electrometer, by J. Hepperger.

November 11.—On the Tsubra deer (*Cervus Lüdorfii*, Bohlan), by L. T. Fitzinger.—On the question as to the nature of galvanic polarisation, by F. Exner.—On the latent heat of vapours, by C. Puschl.—Theory of acceleration-curves, by F. Wittenbauer.—On derivatives of cinchonin acid and of chinolin, by H. Weidel and A. Cobenzel.—On croton-aldehyde and its derivatives, by A. Lieben and T. Veisel.—On reduction of croton chloral, by the same.

CONTENTS

	PAGE
THE FUTURE OF POLAR RESEARCH	49
THE SANITARY ASSURANCE ASSOCIATION	50
J. INCKS'S "BRITISH MARINE POLYZOO"	51
OUR BOOK SHELF.—	
Routledge's "Popular History of Science"	52
Hewitt's "Class-Book of Elementary Mechanics, adapted to the Requirements of the New Course"	53
LETTERS TO THE EDITOR:—	
Sir Wyville Thomson and Natural Selection.—Sir C. WYVILLE THOMSON, F.R.S.	53
Rapidity of Growth in Corals.—Dr. R. W. COPPINGER	53
Geological Climates.—J. STARKIE GARDNER	53
Order Zeuglodontia, Owen.—SEARLES V. WOOD, JUN. (With Illustration).	54
Temperature of the Breath.—Dr. WM. ROBERTS	55
Height of the Aurora.—H. T. H. GRONEMAN	56
Fascination.—L. P. GRATACAP	56
HOMAGE TO MR. DARWIN	57
THE ATOMIC WEIGHT OF BERYLLIUM	57
THE PHOTOPHONE. By SHELFORD BIDWELL	58
THE CHRONOGRAPH (With Illustrations)	59
THE BELGIAN ENTOMOLOGICAL SOCIETY	62
A GENERAL THEOREM IN KINEMATICS. By GEORGE M. MINCHIN	62
NOTES	62
OUR ASTRONOMICAL COLUMN:—	
The Solar Eclipse of December 31	65
The Deneuch Comet	65
INTRODUCTORY LECTURE TO THE COURSE OF METALLURGY AT THE ROYAL SCHOOL OF MINES. By Prof. W. CHANDLER ROBERTS, F.R.S.	65
ON AN EXPERIMENTAL ILLUSTRATION OF MINIMUM ENERGY. By Sir WILLIAM THOMSON, F.R.S. (With Diagrams)	69
SARGASSUM	70
UNIVERSITY AND EDUCATIONAL INTELLIGENCE	71
SCIENTIFIC SERIALS	71
SOCIETIES AND ACADEMIES	71